one derives from a garden which is *klein, aber mein.* The book is beautifully illustrated with eight halftones in color by ZULMA DE L. STEELE, and would be a pleasing gift book, as well as an excellent reference book for an amateur who may feel, with the author, that "at least it is better to have tried and failed, than not even to have made the attempt." The author, however, was evidently successful and shows an intimate knowledge of garden life. The nature sketches are pleasing, and the whole book is written in a very happy vein, to which its attractive form is appropriate.—MARY H. FROST.

Hymenomycetes of the Chicago region.—The Natural History Survey of the Chicago Academy of Sciences has begun the publication of a descriptive catalogue of the higher fungi of the Chicago area. The first part, containing the Hymenomycetes by MOFFATT, has just appeared.[7] It is well printed and the plates are halftones from excellent photographs. The keys to genera and species should make determination comparatively simple, but the key to genera would be far more convenient if the page numbers were inserted. The "Chicago area" means Cook and Dupage counties, with portions of Will County, Ill., and Lake County, Ind., including about 1800 square miles. From this area 371 species of Hymenomycetes are reported, representing 79 genera, the distribution by families being as follows: Agaricaceae, 46 gen., 211 spp.; Polyporaceae, 15 gen., 78 spp.; Hydnaceae, 5 gen., 25 spp.; Thelephoraceae, 8 gen., 41 spp.; Clavariaceae, 2 gen., 12 spp.; Tremellaceae, 3 gen., 4 spp.—J. M. C.

Indian woods and their uses.—The Imperial Forest Research Institute of India has begun the publication of a series of memoirs, the first number of which deals with Indian woods and their uses.[8] It is a bulky quarto volume of nearly 500 pages, dealing wih 554 species. This is only a fraction of the total number ot Indian woody species, which is said to be about 5000 and rather more than half of them trees. The first part contains a list of the purposes for which woods are employed and the woods used for each, while in the second part these woods are described. There is an index to English and trade names (9 pp.), and also a surprisingly extensive one (202 pp.) to vernacular names.—J. M. C.

The flora of central and southern Congo.—Another fascicle[9] of this important taxonomic work has been issued recently under the able editorship of Professor ÉM. DE WILDEMAN. The present fascicle contains a list of Mycetes prepared by the late Professor P. HENNINGS, also a list of fungi by H. and P. SYDOW; the Pteridophyta have been elaborated by Dr. H. CHRIST and the Embryophyta by Dr. DE WILDEMAN. Nearly one hundred new species and several varieties are

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7 MOFFATT, W. S., The higher fungi of the Chicago region. Part I. The Hymenomycetes. Chicago Acad. Sci. Nat. Hist. Surv. Bull. **7**: 1–156. *pls. 1–24.* 1909.

8 TROUP, R. S., Indian woods and their uses. Indian Forest Memoirs **1**: No. 1. 4to. pp. 273+ccxvii. 1909.

9 DE WILDEMAN, ÉM., Flore du Bas- et du Moyen-Congo. Ann. Mus. Congo. Botanique, Sér. V. Tome iii. fasc. 1. pp. 147. *pls. 27.* Brussels. 1909.

here published, and the text is supplemented by twenty-seven full-page illustrations.—J. M. GREENMAN.

Handbook of deciduous trees.—The ninth part[10] of SCHNEIDER'S *Handbook* (the fourth section of the second volume) has followed the preceding one[11] with great promptness. As already noted, it presents descriptions of the species of angiospermous trees, native or under cultivation in central Europe, and is illustrated freely. The present part begins with Tilia and ends with Rhododendron. —J. M. C.

NOTES FOR STUDENTS

Morphology of Tumboa.—Three years ago PEARSON published[12] the results of his investigation of Tumboa (Welwitschia) from material obtained in one day's collecting. A second expedition to Damaraland was made possible and material was collected during January and February of 1907, the results of the investigation of which are now published.[13] The additional stages thus secured have put our knowledge of this most interesting plant upon a fairly substantial basis, and PEARSON is to be thanked for his persistent enthusiasm in securing this difficult material. An outline of what seem to be the most significant new results is as follows:

The staminate and ovulate strobili are often produced in great profusion and their occurrence below the single pair of leaves is frequent. Pollination is mainly effected by a hemipterous insect (Odontopus), the pollen being received by a nectar drop on the top of the projecting micropylar tube. The pollen grains frequently germinate in the micropyle at some distance from the tip of the nucellus, the tube growing down through the fluid which fills the micropyle at the time of pollination. The generative cell passes into the tube, where its nucleus divides, the binucleate cell either remaining undivided or forming two male cells. The tube nucleus begins to break down before fertilization and eventually disappears.

The most critical and puzzling structure of Tumboa, however, is the embryo sac. Megaspores and embryo sacs are often present in the pith region of the axis of the ovulate strobilus, so that the cauline origin of the ovule is clear. A single megaspore mother cell is organized and a single megaspore functions. The female gametophyte begins with free nuclear division and no vacuolation, and successive simultaneous divisions occur until there are approximately 1024 free and crowded nuclei. Elongation of the sac then occurs, chiefly in its micropylar

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[10] SCHNEIDER, C. K., Illustriertes Handbuch der Laubholzkunde. Neunte Lieferung (vierte Lieferung des zweiten Bandes). Imp. 8vo. pp. 367–496. *figs. 249–328.* Jena: Gustav Fischer. 1909. *M* 4.

[11] BOT. GAZETTE **47**:415. 1909.

[12] PEARSON, H. H. W., Some observations on *Welwitschia mirabilis* Hooker. Phil. Trans. Roy. Soc. London B **198**:265–304. *pls. 18–22.* 1906. Review in BOT. GAZETTE **42**:67. 1906.

[13] ———, Further observations on Welwitschia. Phil. Trans. Roy. Soc. London B **200**:331–402. *pls. 22–30.* 1909.